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# TRANSACTIONS

OF

## THE AMERICAN PHILOSOPHICAL SOCIETY.

### ARTICLE I.

*Continuation of Mr. Lea's Paper on Fresh Water and Land Shells. Read February 19, 1841.*

#### HELIX & CAROCOLLA. (LAMARCK.)

THE genus *Helix* is widely scattered over the soil of the United States, and the same species have in many instances a very wide geographical range. Climatal influence is very evident in many species.—In some localities they are more inflated and larger; in others more depressed, even becoming *carinate* like the genus *Carocolla*. The uncertainty of this *carinate* character has induced me to hesitate in the admittance of the genus *Carocolla*, but the number of *Helices* is so great that a strong inducement is presented to preserve it for the present.

The *Helices* of the United States are nearly all of a dull horn colour, and in this respect not very attractive. Most of the species are, however, furnished with apertures differing much from each other, and presenting the most interesting characters as regards teeth, &c. Mr. Say has described thirty-nine species, and seventeen have been proposed by myself and other naturalists. To that number I propose now to add a single species, as well as one to the genus *Carocolla*.

#### HELIX TENNESSEENSIS.\*

*Testū suprà plano-convexā, subtus convexā, luteā, obliquē striatā, umbilicatā; spirā brevi; suturis subimpressis; anfractibus quinis, subconvexis; aperturā lunatā; labro intus incrassato.*

Shell above plano-convex, beneath convex, yellow, obliquely striated, umbilicated; spire short; sutures somewhat impressed; whorls five, somewhat convex; aperture lunate; lip thickened within.

Hab. Cumberland Mountains, Tennessee. S. M. Edgar. My Cabinet, and Cabinet of Mr. Edgar. Diam. .45, Length .32 of an inch.

*Remarks.*—A species very nearly allied to *H. limbata*, Drap. It differs in having a wider umbilicus, a less expanded aperture, and having an indistinct brownish line on the periphery, the *limbata* having a white and very distinct one. The striæ cover the whole

\* It is regretted that the figures to illustrate the species of Mr. Lea's paper cannot now appear. It is hoped that they may be hereafter furnished.

surface of the shell, but are more distinct on the superior part. The thickening of the line within the edge of the lip gives a white band on the outside.

#### CAROCOLLA EDGARIANA.

*Testā suprā subplanā, subtus convexā, rufō-fuscā, enormiter striatā, imperforatā; spirā brevi; suturis vix impressis; anfractibus quinis, planulatis; aperturā angustissimā; columellā dentem unicum longum et laminatum habente; labro incrassato, in medio inciso.*

Shell nearly flat above, beneath convex, reddish brown, irregularly striate, imperforate; spire short; sutures scarcely impressed; whorls five, flattened; aperture very narrow; columella furnished with a long lamellar tooth; lip thickened, in the middle notched.

Hab. Cumberland Mountains, Tennessee. S. M. Edgar. My Cabinet and Cabinets of Mr. Edgar and Dr. Troost. Diam..40, Length .20 of an inch.

*Remarks.*—Among a number of *Helices* taken by Mr. Edgar were three specimens of this species, which do not seem to have been before observed. The carina is sharp. The form of the aperture that of *H. hirsuta*, (Say,) except that the superior and thick part of the lip joins the tooth of the columella. On the surface of the shell there is no hirsute character. Several specimens of the *hirsuta* accompanied them, all of which presented their usual subglobose character. It differs from *C. spinosa*, (nobis,) in being smaller, less flattened, and being without the cilia.

#### BULIMUS JAYANUS.

*Testā ovato-conicā, crassā, suprā albidiā, subtus castaneā, perforatā; anfractibus senis, subconvexis; aperturā ellipticā; labro reflexo, albo, margine lineato; columellā albā, laevi.*

Shell ovately conical, thick, whitish above, chestnut colour below, perforate; whorls six, somewhat convex; aperture elliptical; lip reflected, white, margin lineate; columella white, smooth.

Hab. Java? My Cabinet and Cabinet of Dr. Jay. Diam. .1, Length, 1.9 of an inch.

*Remarks.*—This species was purchased of a dealer who informed me that it came from Java. It is remarkable for the distinct division of the colour on the middle of the lower whorl, the superior part being whitish with distinct longitudinal brown striae and spots below the sutures, which are very small. The perforation is very small, and around it the colour is lighter. The chestnut colour of the lower part is visible in the interior, and on the white lip forms a rather sharp angle. The brown line on the margin of the lip is very distinct. The apex is black, the aperture is nearly one-half the length of the shell.

#### ACHATINA TURBINATA.

*Testā turbinatā, fuscā, suprā obliquo-fasciatā et maculatā, striis minutis decussantibus; suturis impressis; anfractibus octonis, convexis, infrā suturas impressis; aperturā parvā, ovatā; columellā incurvā.*

Shell turbinate, brownish, above obliquely banded and spotted, with minute decussate striae; sutures impressed; whorls eight, convex, impressed below the sutures; aperture small, ovate; columella incurved.

Hab. Liberia. Dr. Blanding. My Cabinet and Cabinet of Dr. Blanding. Diam. 1.4, Length 2.7 inches.

*Remarks.*—Among many shells procured from Liberia by Dr. Blanding were a few specimens of this *Achatina* which I believe has not been described. It has some resemblance to *A. flammata*, Cailliaud, but is a larger species. Those sent to me by that traveller, from Sennar, being very much exserted. The *flammata* from the south of Africa is

shorter than that from Nubia, but it is not so turbinate as this species, nor do they agree in the form of their apertures nor in the markings. On the lower whorl the *turbinata* is brown. The superior whorls are obliquely marked with brown bands, which are broken up into spots on the penultimate whorl, and become darker. In the form of the mouth it approaches very closely to the genus *Bulimus*.

#### ACHATINA STRIATA.

*Testâ subcylindraceâ, corneâ, tenui, longitudinaliter elegantissimèque striatâ; suturis impressis; anfractibus octonis, subconvexis; aperturâ parvâ, ellipticâ; columellâ incurvâtâ.*

Shell somewhat cylindrical, horn colour, thin, longitudinally and beautifully striae; sutures impressed; whorls eight, rather convex; aperture small, elliptical; columella incurved.

Hab. Liberia. Dr. Blanding. My Cabinet and Cabinet of Dr. Blanding. Diam. .12, Length .38 of an inch.

*Remarks.*—This is a beautiful little species, rather larger than the *folliculus*, Lam. In form it resembles *Bulimus octoneus*, Rang. (*Achatina*,) but is not quite so large. Its minute and close ribs distinguish it at once, as the *octoneus* is perfectly smooth. The aperture is about one-fourth the length of the shell, and the striæ do not extend below the middle part of the lower whorl.

#### GENUS SUCCINEA. (DRAPARNAUD.)

Eight species of *Succinea* have been described as inhabiting the United States. I now propose to add nine to that number, besides three from the West Indies and East Indies.

#### SUCCINEA GRACILIS.

*Testâ longo-ovatâ, obliquâ, exsertâ, subdiaphanâ, striatâ, pallido-luteâ; spirâ elevatâ; suturis impressis; anfractibus subconvexis; aperturâ longo-ovatâ.*

Shell long-ovate, oblique, exserted, subdiaphanous, striae, pale yellow; spire elevated; sutures impressed; whorls sub-convex; aperture long-ovate.

Hab. Java? My Cabinet. Diam. .32, Length .42 of an inch.

*Remarks.*—I procured a single specimen of this graceful and delicate species in New York of a dealer some years since. He informed me that it came from the collection of Mr. Shillaber, which was brought from Batavia. In form it resembles *S. Nuttalliana* herein described, but it is a much more exserted species and larger. The whorls below the sutures are impressed. The striæ are larger and more distant near to the aperture. A small portion only of the epidermis remains, and that is dark. The point of the spire is fractured, and therefore the number of the whorls is not mentioned. I suppose, when perfect there will be found three. The want of the usual transparency may be occasioned by the specimen not being fresh.

#### SUCCINEA WARDIANA.

*Testâ obliquo-ovatâ, subnitidâ, diaphanâ, obsoletè striatâ, luteâ; spirâ breviusculâ; suturis subimpressis; anfractibus ternis, convexis; aperturâ subrotundâ.*

Shell obliquely ovate, somewhat shining, diaphanous, obsoletely striae, yellowish; spire rather short; sutures rather impressed; whorls three, convex; aperture nearly round.

Hab. Ohio. Dr. Ward. My Cabinet and Cabinet of P. H. Nicklin. Diam. .20, Length .32 of an inch.

*Remarks.*—This species was sent to me by the late Dr. Ward from Roscoe, in the northern part of Ohio, and I presume came from the vicinity of that place. It is allied to *S. vermeta*, (Say,) but has a less exserted spire and is not quite so oblique. It is also a smaller species. The aperture is about two-thirds the length of the shell.

#### SUCCINEA TOTTEIANA.

*Testâ obliquo-ovatâ, subnitidâ, subdiaphanâ, obsoletè striatâ, corneâ; spirâ brevi; suturis impressis; anfractibus ternis, convexus; aperturâ ellipticâ.*

Shell obliquely ovate, somewhat shining, rather transparent, obsoletely striate, horn colour; spire short; sutures impressed; whorls three, convex; aperture elliptical.

Hab. Newport, Rhode Island. Col. Totten, United States Army. My Cabinet, and Cabinets of Col. Totten, and P. H. Nicklin. Diam. .30, Length .48 of an inch.

*Remarks.*—Many years since Col. Totten sent me this species. Never having been able to identify it with any described species, I now propose to name it after him. It is rather an inflated species, but not so much so as the *obliqua*, (Say,) nor is it so large. It resembles the *ovalis*, (Say,) but is rather smaller, more oblique and less inflated. The aperture is rather more than two-thirds the length of the shell, and the apex is very small, somewhat mamillate. The epidermis is rather dark. The substance of the shell is slightly iridescent, giving it an opalescent appearance, and this is slightly observed through the epidermis.

#### SUCCINEA NUTTALLIANA.

*Testâ longo-ovatâ, obliquâ, subnitidâ, diaphanâ, striatâ, pallido-luteâ; spirâ subelevatâ; suturis impressis; anfractibus ternis, subconvexus; aperturâ longo-ovatâ.*

Shell long-ovate, oblique, transparent, striate, pale yellow; spire rather elevated; sutures impressed; whorls three, somewhat convex; aperture long-ovate.

Hab. Oregon. Prof. Nuttall. My Cabinet and Cabinets of Prof. Nuttall, and Dr. Jay. Diameter .25, Length .50 of an inch.

*Remarks.*—A very oblique, slender and graceful species, allied to *retusa nobis*, but smaller, less elongated, and not having the inferior part or base quite so retuse. The aperture is about three-fourths the length of the shell.

#### SUCCINEA AUREA.

*Testâ obliquo-ovatâ, nitidâ, diaphanâ, lævi, aureâ; spirâ subelevatâ; suturis impressis; anfractibus ternis, convexus; aperturâ ovatâ.*

Shell obliquely ovate, shining, transparent, smooth, golden; spire rather elevated; sutures impressed; whorls three, convex; aperture ovate.

Hab. Springfield, Ohio. T. G. Lea. My Cabinet and Cabinets of T. G. Lea, and P. H. Nicklin. Diam. .20, Length .32 of an inch.

*Remarks.*—This is a beautiful little species, remarkable for its fine surface and bright golden colour. In form it is nearly allied to *vermeta*, (Say.) In colour it has some resemblance to a species sent to me by M. D'Orbigny, from Paris, under the name of *putris*, Lin., and obtained by him in Colombia. His shell is quite different from the *putris* of Europe, and I propose the name of the distinguished traveller for it; if I am correct, *Succinea Dorbigniana*. The aperture of the *aurea* is about three-fifths the length of the shell.

## SUCCINEA CANDÈANA.

*Testâ obliquo-ovatâ, subnitidâ, obsoletè varicosâ, diaphanâ, roseâ; spirâ brevi; suturis subimpressis; anfractibus ternis, inflatis; aperturâ lato-ovatâ.*

Shell obliquely ovate, somewhat shining, obsoletely varicose, diaphanous, rose colour; spire short; sutures impressed; whorls three, inflated; aperture wide-ovate.

Hab. Martinique. Lieut. Candè. My Cabinet and Cabinet of M. Candè, Paris. Diam. .58, Length .85 of an inch.

*Remarks.*—Lieut. Candè, of the French navy, was kind enough, a few years since, to give me, among many interesting shells, collected in the Island of Martinique, several specimens of this *Succinea*, which I name after him. I am not aware that it has elsewhere been noticed. In form and size it resembles *S. obliqua*, (Say.) It is, however, larger, has the sutures less impressed, of a redder colour, and in its varicose markings entirely differs. It has some resemblance to that species figured by Ferussac, pl. II. A. fig. 7, but it is more inflated, and the spire is much more obtuse.

## SUCCINEA FULGENS.

*Testâ obliquo-ovatâ, fulgens, diaphanâ, striatâ, aureâ; spirâ subelevatâ; suturis impressis; anfractibus ternis, convexis; aperturâ lato-ovatâ.*

Shell obliquely ovate, brilliant, diaphanous, striate, golden colour; spire rather elevated; sutures impressed; whorls three, convex; aperture wide-ovate.

Hab. Cuba. M. Poey. My Cabinet. Diam. .30, Length .45 of an inch.

*Remarks.*—Among other land shells received some years since from Mr. Poey, who had under his charge the Botanic Garden of Havana, I received a single specimen of *Succinea* which does not appear to me to have been described. In form it somewhat resembles the *ovalis*, (Say,) but differs in size and colour. In its brilliant colour it is allied to *S. aurea* herein described. It is, however, less brilliant, more inflated, and quite double the size. The aperture is about two-thirds the length of the shell, and the apex takes a reddish hue.

## SUCCINEA OREGONENSIS.

*Testâ obliquâ, tenui, rugoso-striatâ, rufâ, subdiaphanâ; spirâ exsertâ; suturis valdè impressis; anfractibus ternis, inflatis; aperturâ magnâ, lato-ovatâ.*

Shell oblique, thin, rugosely striate, reddish, subdiaphanous; spire exserted; sutures much impressed; whorls three, inflated; aperture large, wide-ovate.

Hab. Oregon. Prof. Nuttall. My Cabinet, and Cabinets of Prof. Nuttall, and Dr. Jay. Diam. .15, Length .30 of an inch.

*Remarks.*—A single specimen only of this small species was given to me by Mr. Nuttall. It nearly answers to Mr. Say's description of *S. avara*, but differs in size, colour and form from that usually received as his species. The spire is elevated for a *Succinea*, and curls somewhat like a worm. The aperture is a good deal rounded, and is about two-thirds the length of the shell.

## SUCCINEA INFLATA.

*Testâ subrotundâ, inflatâ, tenui, lacteâ; spirâ brevi; suturis subimpressis; anfractibus ternis, rotundatis; aperturâ lato-ovatâ.*

Shell subrotund, inflated, thin, milk-white; spire short; sutures impressed; whorls three, rounded; aperture wide-ovate.

Hab. South Carolina. Prof. Ravenel. My Cabinet, and Cabinet of Prof. Ravenel. Diam. .30, Length .45 of an inch.

*Remarks.*—Many years since Prof. Ravenel sent me several specimens of this species under the name of *S. campestris*, (Say.) It does not, however, answer entirely to Say's description, and it certainly is not the same species with those placed in the Philadelphia Museum under that name by him. It is a more inflated species. It is quite white, with a few semi-transparent longitudinal lines. The aperture is about three-fourths the length of the shell.

### PLANORBIS. (LAMARCK.)

Seventeen species of the genus *Planorbis* have been described as inhabiting the waters of the United States, and I now propose to add three to that number. Lamarck described twelve, of which eight inhabit Europe.

#### PLANORBIS REGULARIS.

*Testâ subglobosâ, supernè subplanâ, subtus angusto-umbilicatâ, pellucidâ, pallido-luteâ, obsoletè striatâ; anfractibus ternis, supernè carinatis; labro acuto, marginato, intus incrassato; aperturâ ovatâ.*

Shell subglobose, above nearly flat, beneath narrow umbilicate, pellucid, pale yellow, obsoletely striate; whorls three, above carinate; lip acute, margined, within thickened; aperture ovate.

Hab. United States. My Cabinet and Cabinet of P. H. Nicklin. Diam. .30, Length .20 of an inch.

*Remarks.*—I have unfortunately mislaid the label which accompanied the shells from which the above descriptions were made. My impression is that they came from one of the Western States. All the specimens before me are very much alike in size and form, being exceedingly regular. The striæ are more perceptible around the umbilicus and on the spire. On the side they are so much obliterated as to permit the whorl to present a shining appearance. The carina is very sharp and well defined. It has very much the appearance of a young *trivolvis*, (Say,) and may possibly be only a variety of that species.

#### PLANORBIS BUCHANENSIS.

*Testâ sublenticulari, supernè subconvexâ, ad peripheriam carinatâ, subtus angusto-umbilicatâ, vel corneâ vel subfuscâ, lævi; anfractibus ternis; labro acuto; aperturâ rotundâ.*

Shell sublenticular, above subconvex, carinate at the periphery, beneath narrow umbilicate, horn-colour or brownish, smooth; whorls three; lip sharp; aperture rounded.

Hab. Near Cincinnati, Ohio. R. Buchanan. My Cabinet, and Cabinets of T. G. Lea, and R. Buchanan. Diam. .12, Length .08 of an inch.

*Remarks.*—Several specimens of this species were sent to me several years since by my brother T. G. Lea, who informed me that they were first observed by Mr. Buchanan, after whom I name it. This species is very nearly allied to *P. lens*,\* nobis, but it may at once be distinguished by its round aperture, which is somewhat spread out. The aperture of the *lens*, (now *lenticularis*,) is *triangular*, and the size of the shell rather larger.

#### PLANORBIS BELLUS.

*Testâ orbiculari, supernè plano-concavâ, subtus lato umbilicatâ, virido-luteâ, crebrissimè et elegantissimè striatâ; anfractibus quaternis, supernè carinatis, subtus subcarinatis; labro acuto; aperturâ parvâ, subrotundâ, intus rufo-fuscâ.*

Shell orbicular, above regularly concave, beneath widely umbilicate, greenish yellow, closely and beautifully striate; whorls four, carinate above, subcarinate below; lip sharp; aperture small, within reddish brown.

Hab. Tennessee. Dr. Troost. My Cabinet, and Cabinet of Dr. Troost. Diam. .40, Length .22 of an inch.

\* This name being preoccupied, I propose to change it to *lenticularis*.

*Remarks.*—A single specimen only of this species was received from Dr. Troost. Like the *P. corpulentus*, (Say,) it is covered with striæ, but in the *bellus* they are much closer and more regular. It is a much less inflated shell, and more regular in its form.

### PHYSA. (LAMARCK.)

The genus *Physa*, established, as some authors say, for the reversed species of *Lymnaea*, is abundant in the fresh waters of our country. There have been twelve species heretofore described as inhabiting the United States, and I now propose to add three more to the number.

As to the propriety of the separation from *Lymnaea*, I have no doubt. To those who have been familiar with many species of the two genera, their distinctive characters will, I think, be perfectly apparent. Lamarck described only four species.

### PHYSA HILDRETHIANA.

*Testâ ellipticâ, subcompressâ, longâ, subpellucidâ; spirâ obtuso-elevatâ; anfractibus quinis; labro marginato; aperturâ longâ, compressâ.*

Shell elliptical, somewhat compressed, long, somewhat pellucid; spire obtusely elevated; whorls five; lip margined; aperture long, compressed.

Hab. A lake in Illinois. Dr. Hildreth. My Cabinet, and Cabinet of Dr. Hildreth. Diam .40, Length .75 of an inch.

*Remarks.*—This species is among the largest, and is perhaps the most remarkable *Physa* yet observed in this country. The aperture is little more than half the length of the shell. The apex is very obtuse, and the whole shell is somewhat cylindrical. A single specimen was brought by Mr. Nicklin from Dr. Hildreth, and I name it after him, as he seems first to have observed it.

### PHYSA INFLATA.

*Testâ inflatâ, tenebrosâ, subpellucidâ; spirâ subelevatâ, acuto-conicâ; anfractibus quinis; labro marginato inflato; aperturâ latâ.*

Shell inflated, dark, somewhat pellucid; spire somewhat elevated, acutely conical; whorls five; outer lip margined and inflated; aperture wide.

Hab. Virginia, between the Salt Sulphur, and the Sweet Springs. P. H. Nicklin. My Cabinet and Cabinet of Mr. Nicklin. Diam. .48, Length .65 of an inch.

*Remarks.*—Two specimens were taken by Mr. Nicklin in a small stream which crosses the road in a gap in the main chain of the Alleghany Mountain between the Salt Sulphur and the Sweet Springs in Virginia. The gap is nearly level for several miles, and some of the streams run to the West and some to the East. This species seems to me to differ from any with which I am acquainted. It is perhaps most nearly allied to *P. heterostropha*, (Say,) but has a shorter aperture and is more inflated.

### PHYSA TROOSTIANA.

*Testâ ellipticâ, subcrassâ, luteo-fuscâ, lœvi; spirâ obtusâ; suturis subimpressis; anfractibus quinis, subconvexis; labro marginato, intus incrassato; aperturâ parvâ, ovatâ, contractâ.*

Shell elliptical, rather thick, yellow-brown, smooth; spire obtuse; sutures slightly impressed; whorls five, slightly convex; lip margined, thickened within; aperture small, ovate, contracted.

Hab. Near Nashville, Tennessee. Dr. Troost. My Cabinet and Cabinet of Dr. Troost. Diam. .25, Length .45 of an inch.

*Remarks.*—This is a short, obtuse species about the size of *P. aurea*, (nobis.) The substance of the shell is very thick for the genus, and it is much more thickened within the margin than any species I have observed. The line along the margin of the lip is of a reddish brown. The indentation of the columella is lower than usual. The aperture is about two-thirds the length of the shell.

### GENUS LYMNÆA. (LAMARCK.)

The genus *Lymnaea* seems to be widely distributed round the globe. Lamarck describes seven species as indigenous to France. We have had twenty-seven species described by Mr. Say, and other American zoologists, and to them I now propose to add sixteen from our own country, including several brought by Mr. Nuttall from Oregon, besides one taken by this traveller from Oahu.

In the enumeration above, I include Mr. Say's *L. appressa*, although my conviction has been for a long time that it is only the analogue of *stagnalis* of Europe. I have taken it on the St. Lawrence, and my cabinet is also possessed of American specimens from Vermont, Ohio, and Oregon. Its geographical distribution is probably wider than that of any other species of *Lymnaea*.

#### LYMNÆA PHILADELPHICA.

*Testâ ovato-conicâ, tenui, striatâ, nitidâ, diaphanâ, subaureâ, imperforatâ; spirâ subelevatâ; suturis valde impressis; anfractibus quinis, convexis; aperturâ angusto-ellipticâ.*

Shell ovately conical, thin, striated, shining, diaphanous, rather golden, imperforate; spire rather elevated; sutures much impressed; whorls five, convex; aperture narrow-elliptical.

Hab. River Schuylkill, near Philadelphia. My Cabinet, and Cabinets of P. H. Nicklin, and Dr. Griffith. Diam. .20, Length .48 of an inch.

*Remarks.*—This species is about the size of, and is allied to *plica* and *Griffithiana*, herein described, and to *modicella*, (Say.) It has a more elongated aperture than *Griffithiana*, has a smaller fold than *plica*, and is higher in the spire than *modicella*. The aperture is about half the length of the shell. I procured many specimens west of Philadelphia. Dr. Griffith informs me that he found them common south of the city.

#### LYMNÆA GRIFFITHIANA.

*Testâ ovato-conicâ, tenui, substriatâ, nitidâ, subdiaphanâ, luteo-corneâ, perforatâ; spirâ breviusculâ; suturis impressis; anfractibus quinis, convexis; aperturâ ellipticâ.*

Shell ovately conical, thin, substriate, shining, somewhat diaphanous, yellowish horn-colour, perforate; spire rather short; sutures impressed; whorls five, convex; aperture elliptical.

Hab. Charlotte Lake, Columbia County, New York. Dr. Griffith. My Cabinet, and Cabinets of Dr. Griffith, and Philadelphia Museum. Diam. .20, Length .30 of an inch.

*Remarks.*—Rather a small species, differing from most in the form of the mouth, which is nearly a perfect ellipse. In a perfect specimen before me the aperture within the margin of the lip is thickened by a raised line. The aperture is not quite one-half the length of the shell. I name it after R. E. Griffith, M. D., who seems to be the only person who has observed it.

## LYMNÆA NUTTALLIANA.

*Testâ ovato-conicâ, subtenui, striatâ, subdiaphanâ, pallido-fuscâ, imperforatâ; spirâ breviusculâ; apice rufâ; suturis impressis; anfractibus senis, convexis; aperturâ ovatâ, inflatâ, intus fasciatâ.*

Shell ovately conical, rather thin, striate, subdiaphanous, pale brown, imperforate; spire rather short; apex red; sutures impressed; whorls six, convex; aperture ovate, inflated, banded within.

Hab. Oregon. Prof. Nuttall. My Cabinet and Cabinets of Prof. Nuttall, and Dr. Jay. Diam. .50, Length .95 of an inch.

*Remarks.*—A fine, rather robust species, resembling *L. elodes*, (Say,) but shorter and more inflated and having a larger and more curved fold. The aperture is rather more than one-half the length of the shell, and is retuse at the lower part. Under the lens may be observed very minute revolving striae. The band within the aperture is removed from the edge of the lip, and is broad and brown. The lip is not reflexed.

## LYMNÆA BULIMOIDES.

*Testâ ovato-conicâ, subtenui, lævi, nitidâ, diaphanâ, fusco-luteâ, minutè perforatâ; spirâ breviusculâ; suturis parvis; anfractibus quinis, subconvexis; aperturâ ovatâ.*

Shell ovately conical, rather thin, smooth, shining, diaphanous, brownish yellow, slightly perforate; spire rather short; sutures small; whorls five, slightly convex; aperture ovate.

Hab. Oregon. Prof. Nuttall. My Cabinet, and Cabinet of Prof. Nuttall. Diam. .22, Length .38 of an inch.

*Remarks.*—Among the shells taken by Prof. Nuttall during his journey over the Rocky Mountains, was this small species, the aperture of which is formed very much like a *Bulinus*. The deposite of the columella is wide, and nearly covers the perforation, which consequently is very small. The aperture is more than half the length of the shell, and the fold obsolete. Several of the specimens, although the substance of the shell is thin, have the apex eroded, some of the superior whorls being entirely gone. I have not observed this to be the case in any other *Lymnaea*.

## LYMNÆA EXIGUA.

*Testâ subfusiformi, tenui, striatâ, subdiaphanâ, pallido-luteâ, perforatâ; spirâ breviusculâ; suturis impressis; anfractibus quinis, subconvexis; aperturâ ellipticâ.*

Shell subfusiform, thin, striated, subdiaphanous, pale yellow, perforate; spire rather short; sutures impressed; whorls five, rather convex; aperture elliptical.

Hab. Tennessee. Dr. Troost. My Cabinet and Cabinet of Dr. Troost. Diam. .15, Length .35 of an inch.

*Remarks.*—This is a small species about the size of *L. plica*, herein described, and in outline resembling it. It differs, however, altogether in the columella, which is nearly straight, and the folds scarcely observable. The aperture is about one-half the length of the shell, and contracted at the lower part.

## LYMNÆA PLANULATA.

*Testâ ovato-conicâ, tenui, lævi, subdiaphanâ, fuscâ, perforatâ; spirâ breviusculâ; suturis impressis; anfractibus quinis, convexis; aperturâ parvâ, ovatâ.*

Shell ovately conical, thin, smooth, subdiaphanous, brown, perforate; spire rather short; sutures impressed; whorls five, convex; aperture small, ovate.

Hab. White Sulphur Springs, Virginia. P. H. Nicklin. My Cabinet and Cabinet of P. H. Nicklin. Diam. .15, Length .35 of an inch.

*Remarks.*—Several specimens of this small species are before me, one of them considerably larger than the other, and possessing one more whorl. The whorls are inflated, but flattened in the middle. This gives a roundness to their superior part. The perforation is small, and the fold scarcely observable. The aperture is less than half the length of the shell, and contracted.

#### LYMNÆA FUSIFORMIS.

*Testâ fusiformi, subcrassâ, crebrè striatâ, pallido-luteâ, imperforatâ; spirâ breviusculâ; suturis leviter impressis; anfractibus senis, planulatis; aperturâ angusto-ellipticâ.*

Shell fusiform, rather thick, closely striate, pale yellow, imperforate; spire rather short; sutures slightly impressed; whorls six, flattened; aperture narrow-elliptical.

Hab. Niagara river, Lewistown, New York. Tobias Wagner. My Cabinet, and Cabinets of P. H. Nicklin, and Tobias Wagner. Diam. .35, Length .60 of an inch.

*Remarks.*—Among a number of interesting shells collected by Mr. T. Wagner, during a long journey in the interior of our country, were several specimens of this species, which has not been, I believe, before noticed. It is found with and is somewhat allied to *L. decidiosa*, (Say.) It differs in being more fusiform, having a larger aperture and flatter whorls, and in being imperforate. It is about the size of, and resembles *L. casta*, herein described. It differs in being less elevated in the spire, in the whorls being more flattened, in having a distinct and curved fold, and in being imperforate. The aperture is nearly two-thirds the length of the shell. The last two whorls are disposed to be wrinkled.

#### LYMNÆA RUSTICA.

*Testâ subfusiformi, tenui, imperforatâ; spirâ subelevatâ; suturis impressis; anfractibus quinis, subconvexis; aperturâ angusto-ellipticâ.*

Shell subfusiform, thin, imperforate; spire rather elevated; sutures impressed; whorls five, rather convex; aperture narrow elliptical.

Hab. Poland, Ohio. Dr. Kirtland. My Cabinet, and Cabinet of Dr. Kirtland. Diam. .15, Length .35 of an inch.

*Remarks.*—A single specimen only of this was received with some other species. It is a small and rather slender species, with a regular tapering spire and an aperture about half the length of the shell. The whole shell is covered over with a red coating of the oxide of iron, giving it a rough aspect.

#### LYMNÆA PLICA.

*Testâ turritâ, subtenui, luteâ, striatâ, imperforatâ; spirâ subelevatâ; suturis impressis; anfractibus quinis, convexis; aperturâ parvâ, ellipticâ.*

Shell turrited, rather thin, yellow, striate, imperforate; spire rather elevated; sutures impressed; whorls five, convex; aperture small, elliptical.

Hab. Tennessee. Dr. Troost. My Cabinet, and Cabinet of Dr. Troost. Diam. .18, Length .38 of an inch.

*Remarks.*—A small species, with a large incurved fold. It resembles *L. exigua*, herein described, in size, but in the form of the columella it is entirely different. The aperture is about half the length of the shell.

### LYMNÆA COARCTATA.

*Testâ fusiformi, tenuissimâ, obsoletè striatâ, diaphanâ, corneâ, imperforatâ; spirâ brevi, mucronatâ; suturis leviter impressis; anfractibus quaternis, subplanulatis; aperturâ grandi, ovatâ.*

Shell fusiform, very thin, obsoletely striate, diaphanous, horn colour, imperforate; spire short, pointed; sutures slightly impressed; whorls four, rather flattened; aperture large, ovate.

Hab. Newport, Rhode Island. Col. Totten, United States Army. My Cabinet, and Cabinet of Col. Totten. Diam. .30, Length .55 of an inch.

*Remarks.*—This is one of the most delicate and fragile of the genus *Lymnaea*, which I have seen. It is allied to Mr. Say's *columella*, but may at once be distinguished by the compression of the superior part of the body whorl, which causes an acute angle in the superior part of the aperture. Under a rather powerful lens, some of the specimens may be perceived to have very minute revolving striæ. The aperture is two-thirds the length of the shell, and is inflated at the inferior part. The fold of the columella is delicate and incurved.

### LYMNÆA CASTA.

*Testâ subfusciformi, subcrassâ, crebrè striatâ, luteâ, perforatâ; spirâ subelevatâ, acuminatâ; suturis impressis; anfractibus senis, convexis; aperturâ grandi, ovatâ.*

Shell subfusciform, rather thick, closely striate, yellow, perforate; spire rather elevated, acuminate; sutures impressed; whorls six, convex; aperture large, ovate.

Hab. Poland, Ohio. Dr. Kirtland. My Cabinet, and Cabinets of Dr. Kirtland and T. G. Lea. Diam. .30, Length .58 of an inch.

*Remarks.*—The columella of this species is remarkably straight, and being reflected causes the lower part of the aperture to be slightly effuse. The last whorl is wrinkled. The aperture is more than half the length of the shell. It is allied to *L. decidiosus*, (Say,) but is a smaller species, has the spire more exserted, and a less curved fold. The perforation is very small. Dr. Kirtland kindly sent me many specimens several years since.

### LYMNÆA PARVA.

*Testâ subturritatâ, tenui, lavi, diaphanâ, corneâ, subperforatâ; spirâ elevatâ; suturis impressis; anfractibus quinis, convexis; aperturâ ellipticâ.*

Shell subturred, thin, smooth, diaphanous, horn colour, subperforate; spire elevated; sutures impressed; whorls five, convex; aperture elliptical.

Hab. Cincinnati, Ohio. T. G. Lea. My Cabinet, and Cabinet of T. G. Lea. Diam. .12, Length .22 of an inch.

*Remarks.*—This is the smallest species which has come under my notice. In general form it resembles *L. curta*, herein described. It is rather less inflated, has a longer aperture, and is more diminutive. The perforation, too, is smaller, and the columella more curved. The two specimens before me have the superior whorls black from the deposite of the oxide of iron. The aperture is about half the length of the shell.

### LYMNÆA CURTA.

*Testâ subturritatâ, subtenui, nitidâ, subdiaphanâ, luteâ, perforatâ; spirâ elevatâ; suturis impressis; anfractibus senis, convexis; aperturâ parvâ, ellipticâ.*

Shell subturred, rather thin, shining, subdiaphanous, yellow, perforate; spire elevated; sutures impressed; whorls six, convex; aperture small, elliptical.

Hab. Cincinnati, Ohio. T. G. Lea. Poland, Ohio. Dr. Kirtland. My Cabinet, and Cabinets of T. G. Lea, and Dr. Kirtland. Diam. .18, Length .32 of an inch.

*Remarks.*—A very small erect species resembling in the form of the aperture, a *Bulinus*, the fold being scarcely perceptible. In its general outline it resembles a *Paludina*, more than most *Lymnææ*. In these characters it is allied to *L. bulimoides* herein described. The aperture is rather more than one-third the length of the shell, and the last whorl is wrinkled. The columella is thickened, and reflected over the perforation.

#### LYMNÆA STRIGOSA.

*Testâ longo-ovatâ, subobliquâ, diaphanâ, striatâ, cornedâ, tenui, imperforatâ; spirâ brevi; suturis impressis; anfractibus quinibus, subconvexis; aperturâ ovatâ.*

Shell long oval, somewhat oblique, diaphanous, striate, horn-coloured, thin, imperforate; spire short; sutures impressed; whorls five, somewhat convex; aperture ovate.

Hab. Near Cincinnati, Ohio. T. G. Lea. My Cabinet, and Cabinet of T. G. Lea. Diam. .38, Length .75 of an inch.

*Remarks.*—This is a very thin fragile species somewhat resembling *L. columella*, (Say,) but may at once be distinguished from that species by its longer spire and less inflated body whorl. It is allied to *L. coarctata*, herein described, differing, however, in being more oblique and in having the whorls more inflated. The aperture is about three-fourths the length of the shell, and acutely angular above.

#### LYMNÆA KIRTLANDIANA.

*Testâ turritâ, tenui, enormiter striatâ, pallido-corneâ, imperforatâ; spirâ elevatâ, attenuatâ; suturis impressis; anfractibus senis, subconvexis; aperturâ angusto-ellipticâ.*

Shell turrited, thin, irregularly striate, pale horn colour, imperforate; spire elevated, attenuate; sutures impressed; whorls six, slightly convex; aperture narrow elliptical.

Hab. Poland, Ohio. Dr. Kirtland. My Cabinet, and Cabinets of Dr. Kirtland and T. G. Lea. Diam. .26, Length .70 of an inch.

*Remarks.*—Many years since Dr. Kirtland sent me several specimens of this shell. I am not aware of its having yet been described. It may have been mistaken for *L. acuta*, (nobis,) being about the size and having the aspect of that shell. It may be distinguished from it, by having a longer and narrower body whorl, and a shorter and narrower aperture. The fold on the columella is smaller and the outer lip less curved. It is a smaller species than the *reflexa*, (Say,) has one whorl less and the mouth is longer. In other characters it resembles it, if the reflected lip be excepted. The aperture is rather less than half the length of the shell. Most of the specimens have an obscure brown line within the margin of the outer lip. The body whorl is disposed to be flattened, and is irregularly wrinkled. Under the lens the fine striae which usually are found in the *Lymnææ*, may be observed beautifully displayed over the whole shell. The superior portion of all the specimens sent, have more or less deposite of the oxide of iron, which gives them the appearance of having two colours.

#### LYMNÆA RUBELLA.

*Testâ ovato-conicâ, tenui, lœvi, nitidâ, diaphanâ, rubellâ, imperforatâ; spirâ breviusculâ; suturis parvis; anfractibus quinibus, subconvexis; aperturâ subgrandi, ovatâ.*

Shell ovately conical, thin, smooth, shining, diaphanous, reddish, imperforate; spire rather short; sutures small; whorls five, somewhat convex; aperture rather large, ovate.

Hab. Oahu. Prof. Nuttall. My Cabinet, and Cabinet of Prof. Nuttall. Diam. .20, Length .35 of an inch.

**Remarks.**—This is a small species procured by Prof. Nuttall during his sojourn at the Sandwich Islands. It is rather smaller than Say's *modicella*, but may be distinguished by its reddish colour, bright surface and distinct fold. The aperture is more than half the length of the shell. The lip is margined by a red line on the inside where the specimen is mature. Some individuals are covered by a deposit of ferruginous matter.

### PALUDINA. (LAMARCK.)

Lamarck described seven species of this genus, five of them being European. In the United States, the species are quite numerous. Mr. Say described thirteen, one of which (*dissimilis*,) properly belongs to his genus *Anculosa*, and three (*limosa*, *porata* and *lustriaca*,) may be transferred to Dr. Gould's genus *Amnicola*. Fifteen others have been proposed by myself and other naturalists, and I now add three to the number.

#### PALUDINA REGULARIS.

*Testâ subglobosâ, subcrassâ, virido-corneâ, lævi, imperforatâ; spirâ brevissimâ; suturis impressis; anfractibus quinis, convexis; aperturâ magnâ, ovatâ, intus cæruleâ.*

Shell subglobose, rather thick, greenish horn colour, imperforate; spire very short; sutures impressed; whorls five, convex; aperture large, ovate, within bluish.

Hab. Ohio? T. G. Lea. My Cabinet, and Cabinet of T. G. Lea. Diam. .38, Length .52 of an inch.

**Remarks.**—A very distinct species with the body whorl about four-fifths the length of the shell. The whorls are very regular, giving the spire somewhat the appearance of a coil of rope. All the specimens before me are more or less incrusted with the oxide of iron. The aperture is inflated, and about three-fourths the length of the shell.

I am not positively sure that this species came from Ohio. By some accident the label has been misplaced, but I am under the impression it came with some other species from my brother at Cincinnati.

#### PALUDINA OBTUSA.

*Testâ subcylindraceâ, subtenui, tenebroso-viridi, lævi, minutè perforatâ; spirâ brevi, ad apicem valde obtusâ; suturis impressis; anfractibus quaternis, convexis; aperturâ parvâ, subrotundâ.*

Shell subcylindrical, rather thin, dark green, smooth, slightly perforate; spire short, at the beaks very obtuse; sutures impressed; whorls four, convex; aperture small, nearly round.

Hab. Ohio. Dr. Kirtland. My Cabinet, and Cabinet of Dr. Kirtland. Diam. .07, Length .10 of an inch.

**Remarks.**—This is among the smallest of the genus, and may at once be distinguished by its obtuse apex which has the appearance almost of being truncate. The whorls do not decrease regularly from the lower one to the apex, the greatest diameter being apparently across the second whorl. In form, therefore, it has the aspect of a *Pupa*. It answers partly to the description of *Paludina Alleghaniensis*, (Green,) but seems to differ in the truncate appearance of the apex, and in the size. Two specimens were found in a box with some other small species, kindly sent to me by Dr. Kirtland. It is rather less than *P. Nickliniana*, and differs from it in being less tapering to the apex. It very closely resembles *P. viridis*, (Lam.) but is rather larger and more obtuse. There were no opercula to examine in these specimens. Aperture rather more than one-third the length of the shell.

## PALUDINA TROOSTIANA.

*Testá ventricoso-conoideâ, tenui, pellucidâ, luteo-corneâ, lèvi, perforatâ; spirâ brevi; suturis valdè impressis; anfractibus quaternis, convexis; aperturâ magnâ, rotundatâ, albâ.*

Shell ventricoso-conical, thin, pellucid, yellowish horn colour, smooth, perforate; spire short; sutures very much impressed; whorls four, convex; aperture large, rounded, white.

Hab. Tennessee. Prof. Troost. My Cabinet, and Cabinet of Prof. Troost. Diam. .68, Length .72 of an inch.

*Remarks.*—This is a subglobose species, differing from any which has come under my notice, in having the superior portion of the last whorl somewhat flattened, giving the shell a somewhat gibbous appearance. The operculum is rather of a light colour, and the plane of the aperture is very retuse at its base. It has a strong resemblance to *P. unicolor*, (Lamarck,) and perhaps a stronger one to *P. Maheyana*, (Grateloup.) It is more depressed in the spire than either, and the perforation is smaller than in the former, while it is nearly the size of that in the latter. The aperture is larger than either. Dr. Grateloup has very properly, I think, separated the Malabar species from that which was observed by Olivier in Egypt, and called *unicolor* by Lamarck. The Egyptian shell has a larger perforation, is darker in colour, and is a larger species. I call this after my friend Prof. Troost.

## GENUS ANCULOSA. (SAY.)

The genus *Anculosa* was proposed by Mr. Say, in the Journal of the Academy of Natural Sciences, vol. 2, p. 178, (1821,) for a new shell, which he then described under the name of *Melania prærosa*. I am not aware that he ever published a description of his proposed genus, but he then mentioned, that it did not correspond with the genus to which he "at present referred it," and he farther says, that "owing to the configuration of the base of the columella, if it is not a *Melanopsis*, it is probable its station will be between the genera *Melania* and *Achatina*."

Four years afterwards, in describing a new species of the same group, under the name of *Melania subglobosa*, he says, "It is a second species of my proposed genus *Anculotus*." He does not allude to the fact of having changed the termination of the name of his proposed genus. I have, therefore, always made use of the first, believing that the change was made through inadvertence. Mr. Haldeman, in his "Monograph of the Limniades," very properly uses *Anculosa*, while Mr. Conrad, in his "New Fresh Water Shells," with some other zoologists, uses *Anculotus*.

The generic characters of the shell of this animal, are difficult in some cases to seize, as the form of the aperture varies, as well as the form of the spire, (notwithstanding its name,) in many species.

Mr. Haldeman seems first to have observed the animal, which he found to differ from *Melania*. He describes it, as having a "very small foot, adapted for holding; animal sedentary; inhabits very rapid water, attached to stones." This of course separates it from *Melania*, and the "obvious characters" of the shell will generally distinguish it from both *Melania* and *Paludina*, as it has usually a callous columella, and a rounded aperture. The operculum, like that of *Melania*, is subspiral; at the same time it appears to me, that the point of radiation in that of *Anculosa* is usually nearer the margin. In the older specimens, the point of radiation is often directly on the margin. This, probably, is owing to part of it being worn away by the motion of the animal.

I am not aware, of this genus having been observed out of the United States. There have been seventeen species described, nearly all of which will stand, and I now propose to add four to that number.

#### ANCULOSA TROOSTIANA.

*Testâ ovato-conicâ, crassâ, minutè rugosâ, tenebroso-fuscâ; spirâ subelevatâ; suturis subimpressis; anfractibus planulatis; aperturâ rotundâ, intus cæruleâ; columellâ crassâ, vel albâ vel carneâ.*

Shell ovately conical, thick, minutely rugose, dark brown; spire somewhat elevated; sutures rather impressed; whorls flattened; aperture rounded, within bluish; columella thick, white or flesh-coloured.

Hab. Tennessee. Professor Troost. My Cabinet, and Cabinet of Professor Troost. Diam. .50, Length .60 of an inch.

*Remarks.*—There are many specimens before me, all of which in form are unusually alike, for a species of *Anculosa*. It differs from other species which have come under my notice, in its spire, which is quite elevated, giving it the aspect of the genus *Melania*. Small irregular wrinkles, or granulations, may be observed over the whole surface in most specimens, and I believe this will generally be found to be more or less the case with most of the species.

#### ANCULOSA GIBBOSA.

*Testâ subglobosâ, gibbosâ, crassâ, subnigrâ, crebrè striatâ; spirâ brevi; suturis impressis; anfractibus subplanulatis; aperturâ subquadrangulari, vel carneâ vel albidiâ.*

Shell subglobose, gibbous, thick, nearly black, thickly striate; spire short; sutures impressed; whorls rather flattened; aperture subquadrangular, flesh-coloured or whitish.

Hab. Tennessee. Professor Troost. My Cabinet, and Cabinet of Prof. Troost. Diam. .50, Length .68 of an inch.

*Remarks.*—This species is about the size of *An. subglobosa*, (Say.) It is not so regularly rounded, being flattened on the upper part of the whorl. The striæ are minute, and seem to be formed by the lines of growth. There is quite a callus on the superior part of the columella, the middle part being deeply impressed. The number of whorls could not be ascertained from my specimens, all of them being more or less eroded.

#### ANCULOSA CARINATA.

*Testâ ovato-conoideâ, carinatâ, tenebroso-olivaceâ; spirâ breviusculâ; suturis parvis; anfractibus senis; aperturâ parvâ, rotundâ, intus albidâ, sulcatâ; columellâ subcrassâ, purpureâ.*

Shell ovately conical, carinate, dark olive; spire rather short; sutures small; whorls six; aperture small, round, within whitish, sulcate; columella rather thick, purple.

Hab. Roanoke River, Lafayette. J. A. Warder, M. D. My Cabinet, and Cabinet of Dr. Warder. Diam. .38, Length .52 of an inch.

*Remarks.*—A single specimen only of this interesting species was sent to me by Dr. Warder. It has some resemblance to *Anculosa dissimilis*, (Say.) It differs in having a smaller and rounder aperture, and in having three *carinæ*, the middle one being the largest. The aperture is rather more than one-third the length of the shell. The *carinæ* are acute.

#### ANCULOSA VARIABILIS.

*Testâ obtuso-conoideâ, crassâ, vel fasciatâ vel corneâ vel carinatâ vel lævi; suturis linearibus; anfractibus senis, planulatis; aperturâ magnâ, subrotundâ; columellâ crassâ, vel albâ vel purpureâ.*

Shell obtusely conical, thick, either banded or horn-coloured, carinate or smooth; sutures linear; whorls six, flattened; aperture large, nearly round; columella thick, white or purple.

Hab. Roanoke River, Lafayette, and near Shenandoah Spring Brook. J. A. Warder, M. D. My Cabinet, and Cabinets of Dr. Warder and T. G. Lea, Cincinnati. Diam. .38, Length .56 of an inch.

*Remarks.*—Three specimens are before me, all of which differ more or less. Two of them are rather acutely carinate, with a dark epidermis and three rather large bands, the other is of a rather light horn colour with indistinct bands in the interior, and having no carina on the lower whorl. On the columella, there is a slight swelling. The aperture is about one-half the length of the shell.

#### AMNICOLA. (GOULD.)

The genus *Amnicola*, proposed by Dr. Gould, and adopted by Mr. Haldeman, in his table of "Water-breathing Lymniades," is separated from the genus *Paludina*; *Paludina lustrica*, (Say,) being made the type. There seems to be sufficient reason for this division, as the animal is different, and the operculum subspiral, differing in this respect entirely from that of *Paludina*, which is concentric.

It is difficult in the present state of our knowledge of these small shells to say how many species are known, as the animals and opercula of all the small species of *Paludina* have not yet been observed. *P. limosa* (Say,) and *porata* (Say,) will belong to this genus.\*

#### AMNICOLA ORBICULATA.

*Testa orbiculata, subtenui, luteola, levii, umbilicata; spirâ brevi; suturis valde impressis; anfractibus quinuis, inflatis; aperturâ magnâ, rotundâ.*

Shell orbicular, rather thin, yellowish, smooth, umbilicate; spire short; sutures much impressed; whorls five, inflated; aperture large, round.

Hab. Springfield, Ohio. T. G. Lea. Schuylkill? near Philadelphia. My Cabinet, and Cabinet of T. G. Lea. Diam. .18, Length .18 of an inch.

*Remarks.*—This species is very closely allied to *Am. parva*, and may perhaps prove to be only a variety of it. The specimens before me are all larger, and they appear to be more globose. The aperture is about one-half the length of the shell. I found a single specimen of this species among many small shells which were thrown together in a box, as being collected from our vicinity. It may be possible that it is an Ohio specimen gotten by accident into the box.†

#### AMNICOLA PARVA.

*Testa obtuso-conicâ, subtenui, luteola, levii, umbilicata; spirâ brevi; suturis impressis; anfractibus quaternis, inflatis; aperturâ magnâ subrotundâ.*

Shell obtusely conical, rather thin, yellowish, smooth, umbilicate; spire short; sutures impressed; whorls four, inflated; aperture large, nearly round.

Hab. Springfield, Ohio. T. G. Lea. My Cabinet, and Cabinet of T. G. Lea. Diam. .15, Length .18 of an inch.

*Remarks.*—The shell described by Mr. Anthony as *Paludina Cincinnatiensis*, resembles this species, but it is more elevated in the spire, and is a larger shell. It is more

\* The shell described by me in vol. 6, page 22, of the Transactions, as *Paludina pallida*, and previously by Mr. Say as *Melania isogona*, but which I had not before seen, has been carefully examined by my brother T. G. Lea of Cincinnati, as to the form and habits of the animal. There can no longer be any doubt of its belonging to the genus *Amnicola*; it should therefore be called *Amnicola isogona*.

† Since the above was written, I have observed a single specimen of this shell among those in the Academy of Natural Sciences, with the true *porata*, from Cayuga Lake. It is, therefore, probable that it exists in our rivers flowing into the Atlantic.

nearly allied to *Amnicola orbiculata*, herein described, but may be distinguished by its being a smaller shell, and being less round in the aperture. The base of the lip is disposed to be slightly angular: the aperture is about one-half the length of the shell.

#### IO. (LEA.)

The genus *Io* was proposed by me for Mr. Say's *Fusus fluviatilis*. I subsequently added the *spinosa*, which may perhaps prove to be only a variety of the other. The *tenebrosa* now proposed, will make three species of this genus.

#### IO TENEBROSA.

*Testâ fusiformi, subtenui, subnigrâ, lævi; spirâ conicâ; suturis vix impressis; anfractibus senis, subplanulatis; aperturâ enormiter pyriformi, intus purpureâ.*

Shell fusiform, rather thin, nearly black, smooth; spire conical; sutures scarcely impressed; whorls six, flattened; aperture irregularly pear-shaped, within purple.

Hab. Tennessee. S. M. Edgar. My Cabinet, and Cabinets of Mr. Edgar and Prof. Troost. Diam. .48, Length .75 of an inch.

*Remarks.*—A single specimen only was brought by Mr. Edgar from Tennessee. It is a small specimen, and may be immature. After a good deal of hesitation, I have determined to give it a place among the species. It seems to me to be very distinct in colour. The channel is more curved to the left and backward, than in Mr. Say's species. It has no trace of spines or tubercles, and is dark all over. I do not know if it ever occurs banded.

*Read June 18, 1841.*

#### HELIX MOBILIANA.

*Testâ subglobosâ, rufo-corneâ, nitidâ, perforatâ; spirâ brevi, obtusâ; suturis impressis; anfractibus senis, convexis; aperturâ lunatâ; labro reflexo.*

Shell subglobose, reddish horn colour, shining, perforate; spire short, obtuse; sutures impressed; whorls six, convex; aperture lunate; lip reflexed.

Hab. Vicinity of Mobile, Alabama. Mr. Charles Lea. My Cabinet, and Cabinet of T. G. Lea. Diam. .30, Length .25 of an inch.

*Remarks.*—My brother, T. G. Lea, sent me several of this species, with other *Helices* collected near Mobile. A single specimen only was perfect in the lip, the remainder being immature. It is not easily confounded with any other of our species. In form it is somewhat like *H. jejuna*, (Say,) but is not more than one-fourth the size, and differs in colour. There is rather a deep groove behind the lip, which is reddish. The umbilicus is small.

#### HELIX MINUTISSIMA.

*Testâ subglobosâ, suprà obtuso-conoideâ, subtus convexâ, fusco-corneâ, minutissimè striatâ, umbilicatâ; spirâ brevi; suturis impressis; anfractibus quaternis, rotundis; aperturâ subrotundâ; labro acuto.*

Shell subglobose, above obtusely conical, below convex; brown horn colour, very minutely striate, umbilicated; spire short; sutures impressed; whorls four, round; aperture nearly round; lip acute.

Hab. Vicinity of Cincinnati. T. G. Lea. My Cabinet and Cabinet of T. G. Lea. Diam. .06, Length .04 of an inch.

*Remarks.*—This is the smallest species, in our country, which has come under my notice. Its very minute longitudinal striae can only be observed by a powerful lens. The umbilicus is rather large and deep. It is nearly the form of *H. labyrinthica*, (Say,) but is a smaller species, is differently striated, and has no teeth. My brother sent me three specimens, which he informs me were found under wet sticks, and on the margin of a pond.

#### MELANIA TURGIDA.

*Testâ lœvi, obtuso-conicâ, inflatâ, crassâ, fasciatâ; spirâ brevi, ad apicem acuminatâ; suturis leviter impressis; anfractibus septenis, planulatis; aperturâ parvâ, formam trapezii habente; columellâ incrassatâ, albâ.*

Shell smooth, obtusely conical, inflated, thick, banded; spire short, pointed at the apex; sutures slightly impressed; whorls seven, flattened; aperture small, trapezoidal; columella thickened, white.

Hab. Holston River, East Tennessee. Prof. Troost, and S. M. Edgar. My Cabinet, and Cabinets of Prof. Troost and S. M. Edgar. Diam. .35, Length .55 of an inch.

*Remarks.*—This is a very short and thick species, having a very large body whorl disposed to be obtusely angular at the middle. The number of bands varies. One of the specimens has a single one, another has two bands, and five have five bands, there being seven specimens before me. That with a single band is of a bright yellow; the others are of a greenish yellow. The aperture is nearly one-half the length of the shell, and twisted at the base.

#### MELANIA GLABRA.

*Testâ lœvi, conoideâ, subtenui, nitidâ, tenebroso-castaneâ; spirâ subelevatâ; suturis leviter impressis; anfractibus subplanulatis; aperturâ elongatâ, formam trapezii habente, intus purpureâ; columellâ incurvâ.*

Shell smooth, conical, rather thin, shining, dark chestnut colour; spire rather elevated; sutures slightly impressed; whorls rather flattened; aperture elongated, trapezoidal, purplish within, columella incurved.

Hab. Holston River, East Tennessee. Prof. Troost, and S. M. Edgar. My Cabinet, and Cabinets of Prof. Troost and Mr. Edgar. Diam. .32, Length .70 of an inch.

*Remarks.*—The apex in all the specimens before me is slightly eroded, and therefore the number of the whorls cannot be accurately ascertained; it may be six or seven. The aperture is more than one-third the length of the shell. The superior whorls are disposed to be carinate, and below the sutures the colour is lighter. The columella is much incurved. Within the aperture, indistinct confluent bands may be observed. These are scarcely observable without, but give the shell a very dark aspect, somewhat like *M. rufa*, (nobis.) It is very different, however, in form, from that species.

#### MELANIA PERFUSCA.

*Testâ lœvi, conoideâ, subcrassâ, tenebroso-fuscâ; spirâ exsertâ; suturis linearibus; anfractibus subplanulatis; aperturâ grandi, inflatâ, ovatâ, intus pallido-purpureâ.*

Shell smooth, conical, rather thick, dark brown; spire exserted; sutures linear; whorls rather flattened; aperture large, inflated, ovate, within pale purple.

Hab. Calf-killer Creek. Tennessee. S. M. Edgar. My Cabinet and Cabinet of Mr. Edgar. Diam. 50, Length 1 inch.

*Remarks.*—A single specimen, with the spire truncate, is before me. The lower portion is perfect. The apex being destroyed, the number of whorls cannot be ascertained.

The aperture is, I presume, rather more than one-third the length of the shell. The lower part of the margin protrudes considerably. It seems to be nearly allied to *M. ebenum*, (nobis,) but is a larger shell, more inflated, and has a larger aperture, being less elliptical.

#### MELANIA PICTA.

*Testā ləvi, obtuso-conicā, crassā, subfusiformi, subviridi, fasciatā; spirā subelevatā; suturis impressis, supernē exaratis; anfractibus octonis, planulatis; aperturā elongatā, formam trapezii habente; columellā incurvā.*

Shell smooth, obtusely conical, thick, subfusiform, greenish, banded; spire rather elevated; sutures impressed, above furrowed; whorls eight, flattened; aperture elongated, trapezoidal; columella incurved.

Hab. Holston River, East Tennessee. Prof. Troost, and S. M. Edgar. My Cabinet, and Cabinets of Prof. Troost and S. M. Edgar. Diam. .30, Length .70 of an inch.

*Remarks.*—The four specimens before me have each three bands, which with the yellowish tint below the sutures give the shell a lively appearance. The superior whorls are disposed to be bicarinate, and the lower carina being covered with the whorl below, causes a furrow along the suture. The aperture is more than one-third the length of the shell, angular at the base, with rather a large sinus.

#### MELANIA IMPRESSA.

*Testā transversē et crebrissimē sulcatā, fusiformi, crassā, rufo-fuscā; spirā obtusā; suturis impressis; anfractibus senis, planulatis; aperturā ellipticā, subgrandi, ad basim angulatā, intus albā.*

Shell transversely and thickly sulcate, fusiform, thick, reddish brown; spire obtuse; sutures impressed; whorls six, flattened; aperture elliptical, rather large, angular at the base, within white.

Hab. Coosa River, Alabama. Dr. Brumby. My Cabinet, and Cabinets of Dr. Griffith, Dr. Foreman, and Mr. J. Clark, of Cincinnati. Diam. .48, Length .81 of an inch.

*Remarks.*—Dr. Griffith received a single specimen only of this singularly marked species, and this is not entirely perfect at the spire or aperture. The whole surface of this specimen is covered with very minute impressed revolving lines, the body whorl having twenty-four. They are nearly equidistant and very regular. Its aperture is nearly one-half the length of the shell. On the superior part of the columella, there is quite a large callus.\* In form and size, it closely resembles the *M. robusta*, herein described.

#### MELANIA ROBUSTA.

*Testā striatā, fusiformi, crassā, luteolā; spirā obtusā; suturis subimpressis; anfractibus senis, subconvexis; aperturā ellipticā, magnā, ad basim angulatā, intus albā.*

Shell striate, fusiform, thick, yellowish; spire obtuse; sutures rather impressed; whorls six, rather convex; aperture elliptical, large, angular at the base, within white.

Hab. Coosa River, Alabama. Dr. Brumby. My Cabinet, and Cabinets of Dr. Griffith, Dr. Foreman, and Mr. J. Clark. Diam. .60, Length .91 of an inch.

*Remarks.*—A single specimen, only, of this fine species was obtained by Dr. Griffith. It presents four rather distant large revolving striæ on the body whorl, and two on the next. In other specimens these may be found more numerous, or entirely wanting. The aperture is nearly half the length of the shell.† In form and size, it very closely agrees with *M. impressa*, herein described.

\* Other specimens subsequently received, confirm nearly all the other characters.

† In specimens subsequently received, the striæ were found to differ but little.

## MELANIA JAYANA.

*Testâ tuberculatâ, subfusiformi, crassâ, pallido-corneâ; spirâ exsertâ; suturis linearibus, curvatis; anfractibus sub-convexis, medio impressis, tubercularum duplii serie cinctis; columellâ incurvatâ, supernè incrassatâ; aperturâ formam trapezii habente, intus albidiâ.*

Shell tuberculate, subfusiform, thick, pale horn colour; spire exserted; sutures linear and curved; whorls rather convex, impressed in the middle, surrounded by a double series of tubercles; columella incurved, thickened above; aperture trapezoidal, whitish within.

Hab. Cany Fork. De Kalb county, Tennessee. Prof. Troost. My Cabinet, and Cabinets of Dr. Jay and Prof. Troost. Diam. .78, Length 1.20 of an inch.

*Remarks.*—Dr. Jay had two specimens of this species, and I owe to his kindness the possession of one of them. It very closely resembles the *M. armigera*, (Say,) in most of its characters, but may at once be distinguished by the double row of tubercles, the *armigera* never possessing distinctly more than one row: below the sutures, however, there are sometimes imperfect tubercles, which are caused by the protrusion of the tubercles of the superior whorl. This protrusion also takes place in the *Jayana*, but causes in it only a constant curvature in the linear suture.

The apex of the specimen is much eroded, and consequently I am not sure of the number of the whorls, probably eight or nine. The aperture may be rather more than one-third the length of the shell, and is acutely angular at the base, with rather a deep sinus. The callus above causes a considerable sinus there. The operculum is dark brown, the radii converging at the lower interior edge.

## ANCULOSA RUBIGINOSA.

*Testâ ovato-gibbosâ, crassâ, lœvi, rubiginosâ; spirâ subelevatâ; suturis impressis; anfractibus planulatis; aperturâ enormiter ovalâ, intus albidiâ; columellâ crassâ, tenebroso-purpureâ.*

Shell ovately gibbose, thick, smooth, rusty colour; spire rather elevated; sutures impressed; whorls flattened; aperture irregularly ovate, within whitish; columella thick, dark purple.

Hab. Warrior River, Alabama. Dr. Brumby. My Cabinet, and Cabinets of Dr. Griffith, Dr. Foreman, and Mr. Clark. Diam. .40, Length .60 of an inch.

*Remarks.*—A single, and not a very perfect specimen is before me. The middle of the whorl is flattened, indeed a little impressed, and this causes a curve in the outer lip. It is obscurely banded, and the whole of the columella is purple. The aperture is nearly two-thirds the length of the shell. The spire is more exserted than usual in the *Anculosæ*, but not perfect in this specimen. Four whorls are perceptible.\*

## ANCULOSA GRIFFITHIANA.

*Testâ ovato-gibbosâ, crassâ, crebrè et transversè striatâ, fasciatâ; suturis impressis; anfractibus quaternis, planulatis; aperturâ ovatâ, intus fasciatâ; columellâ crassâ, tenebroso-purpureâ.*

Shell ovately gibbose, thick, closely and transversely striae, banded; sutures impressed; whorls four, flattened; aperture ovate, within banded; columella thick, dark-purple.

Hab. Coosa River, Alabama. Dr. Brumby. My Cabinet, and Cabinets of Dr. Griffith, Dr. Foreman, and Mr. J. Clark. Diam. .50, Length .60 of an inch.

*Remarks.*—The distinctive characters of this species, are the transverse striae and the flattened side. This flatness causes an obtuse angle below, and one above. One of the two specimens, under examination, is more banded, and has a less number of striae than the other. The aperture is nearly three-fourths the length of the shell.

\* Several very fine specimens have been since received, from Dr. Foreman.

## ANCULOSA TUBERCULATA.

*Testâ ovatâ, crassâ, supernâ, tuberculatâ, fuscâ; spirâ brevi; suturis vix impressis; anfractibus subconvexis; aperturâ ovatâ, intus carneâ; columellâ crassâ, maculatâ.*

Shell ovate, thick, above tuberculate, brown; spire short; sutures scarcely impressed; whorls slightly convex; aperture ovate, within flesh-coloured; columella thick and spotted.

Hab. Warrior River, Alabama. Dr. Brumby. Cabinet of Dr. Griffith. Diam. .38, Length .50 of an inch.

*Remarks.*—The above description is made from a single specimen, which is truncate at the apex, as the species of this genus usually are. Three whorls are visible. In a perfect state, it probably has four. The specimen before me has two rows of tubercles. On the superior part of the whorl, and below these, are two parallel indistinct lines, which may, in other individuals, rise into tubercles. In the interior, two purple bands are visible. On the middle of the columella there is a large purple spot. This may not occur in all specimens. The aperture is about two-thirds the length of the shell.

## VALVATA BICARINATA.

*Testâ orbiculari, supernâ planulatâ, bicarinatâ, subcrassâ, supernâ cornéâ, infernâ albidâ, latè umbilicatâ; suturis impressis; spirâ depressâ; anfractibus quaternis, convexis; aperturâ rotundâ, intus albidâ.*

Shell orbicular, flattened above, bicarinate, rather thick, horn-coloured above, whitish below, widely umbilicate; sutures impressed; spire depressed; whorls four, convex; aperture rounded, whitish within.

*Animal.*—Body rather short and white, head large, tapering, slightly enlarged at the anterior termination, with a black mark passing from the neck between the eyes, tapering off and reaching nearly to the end of the snout, where there are two oblique black marks bordered in front by white, and accompanied behind by several irregular white spots, the anterior ones being the larger. Branchia translucent, superior portion blackish, bordered with white spots and occasionally obtruded; eyes round and deep black, placed at the posterior base of the tentacula, surrounded by a white area; tentacula long, rather tapering, obtuse at the end; filament rather short, translucent with longitudinal white lines; foot wide and furcate anteriorly, where minute white spots may be observed. Operculum thin, semitransparent, light horn colour, increment circular and rather coarse.

Hab. Schuylkill River, west side, below Permanent Bridge. H. C. Lea. My Cabinet. Diam. .30, Length .12 of an inch.

*Remarks.*—In the form of the shell, this species closely resembles the *tricarinata*, (Say.) It differs in having but two carinæ, in having a wider umbilicus, and the spire is more depressed. The animals of the two species differ in form and colour more than the shells.

The head of the *tricarinata* is more cylindrical and enlarged at the termination, where it somewhat resembles the snout of the hog, while that of the *bicarinata* is more conical and without so sudden an enlargement at the end. The colour of the *bicarinata* is lighter. In the black markings they also differ. In the *tricarinata* there is a single blotch anterior to the area between the eyes. In the *bicarinata* this extends also behind this area; and in addition may be observed two quite black marks above the mouth, which the *tricarinata* does not seem to have. The tentacula of the *bicarinata* are larger and more filiform. When in motion, the anterior portions of the lobes of the foot are pointed, and recurved or hooked.

The shell of the *bicarinata* is quite light-coloured beneath, and rather a dark horn colour above, the change of colour taking place a short distance above the periphery of the whorl, between which and the superior carina it is quite dark. The superior carina is large and erect, the inferior one is smaller. All the whorls are visible beneath. Very minute longitudinal striæ cover the whole surface.

Having several living specimens of both these species, I observed them closely with a lens while under water in a glass vessel. On the 15th of May, while I had a *tricarinata* at the focus of my lens, I observed a small apple green, globose object, passing from under the aperture of the shell. This was shortly followed by others, and soon a transparent gelatinous mass became visible. This mass was passed slowly over the right side of the neck, under the pectiniform moveable branchiæ, until entirely discharged against the perpendicular side of the vessel in which it was kept, and there the mass remained attached, the parent having abandoned it immediately. The time was fifteen minutes from the first appearance of the mass until it was fairly discharged. The green globules were the ova, of which I counted thirty in the transparent, globose gelatinous mass, which was not more in diameter than one-twentieth of an inch, the transverse diameter of the shell being about four-twentieths of an inch. In other cases, I found the number of ova to differ; some masses having only ten or twelve.

On the 23d, (eight days after) the ova were so far advanced, as to be changed to a dull faded green, the mass enveloping them having changed by degrees in transparency, and becoming of a slightly ferruginous colour. As yet, no change of bulk or arrangement was observed.

On the 29th, (fourteen days after,) the mass was observed to be opened, and with a lens of considerable power I could plainly see a motion in most of the ova, the rounded form of the shell being easily discerned within.

On the 30th, (fifteen days after) most of the young shells had broken their filmy bonds, only six or seven remaining: their motion was very apparent, and their minute black eyes could be plainly seen. I observed to-day, for the first time, that the *valvata* had the power of swimming, inverted from the surface of the water, like the *Planorbæ*, *Physæ*, &c. Most of the young were in that position, and could move comparatively fast. The action of the mouth in the adult, when swimming in this way, was constant, and changed from an oval to a circular form.

From the above observations, we may conclude that the *valvata tricarinata* requires from fourteen to fifteen days to be perfected in the ovum, from the time it is ejected and abandoned by its parent. The *bicarinata*, I have no doubt, requires the same time. Numerous globules were deposited about the glass, which globules appeared all to resemble each other, and nearly all the individuals were of the species *bicarinata*.

#### PALUDINA ANGULATA.

*Testâ inflatâ, tenui, fuscâ, supernè subvaricosâ, infernè transversè et minutè striatâ, minutè perforatâ; spirâ brevisculâ, ad apicem tenebrosâ; suturis impressis; anfractibus quinis, in medio angulatis; aperturâ magnâ, subtriangulari, intus subrubiginosâ.*

Shell inflated, thin, brown, above somewhat varicose, below transversely and minutely striate, minutely perforate; spire rather short, dark at the apex; sutures impressed; whorls five, angular in the middle; aperture large, subtriangular, within subrubiginous.

Hab. Coosa River, Alabama. Dr. Brumby. My Cabinet, and Cabinets of Dr. Griffith, Dr. Jay, Dr. Foreman, T. G. Lea, and J. Clark. Diam. .80, Length 1.05 of an inch.

*Remarks.*—This is a very distinct species, being more angular than any I have seen. In the specimen before me, there are three irregular transverse impressions, two above the angle, and one immediately below. The striæ are more distinct on the lower half of the whorl. The first three whorls are very dark. The aperture is nearly one-half the length of the shell, and quite angular at the base.\*

#### PALUDINA COOSAENSIS.

*Testa subglobosâ, tenui, pallidâ, sublaevi, perforatâ; spirâ brevi; suturis valde impressis; anfractibus quinis, rotundatis; aperturâ magnâ, subrotundâ, intus albida.*†

Shell subglobose, thin, pale, rather smooth, perforate; spire short; sutures very much impressed; whorls five, round; aperture large, nearly round, within whitish.

Hab. Coosa River, Alabama. Dr. Brumby. My Cabinet, and Cabinets of Dr. Griffith and Dr. Foreman. Diam. .58, Length .62 of an inch.

*Remarks.*—This species is remarkable for its round whorls, its width and large deep sutures. The superior part of the whorls is somewhat flattened. The colour is remarkably pale, nearly white. The epidermis is very thin, and under the lens displays very minute, rather regular longitudinal striæ crossed on the body whorl by obsolete striæ. The aperture is nearly one-half the length of the shell.

#### PALUDINA CYCLOSTOMATIFORMIS.

*Testa subcylindraceâ, subcrassâ, pallido-corneâ, laevi, perforatâ; spirâ exsertâ, ad apicem roseâ, obtusâ; suturis valde impressis; anfractibus quinis, rotundatis; aperturâ parvâ, subrotundâ, intus salmonis colore tinctâ.*

Shell subcylindrical, rather thick, pale horn colour, smooth, imperforate; spire exserted, at the apex rose-coloured and obtuse; sutures very much impressed; whorls five, rounded; aperture small, nearly round, within salmon-coloured.

Hab. Coosa River, Alabama. Dr. Brumby. My Cabinet, and Cabinets of Dr. Griffith, Dr. Jay, L. W. Sloat, and Dr. Foreman. Diam. .32, Length .82 of an inch.

*Remarks.*—This is a very remarkable species assuming very much the form of an exserted *Cyclostoma*. A single, somewhat worn specimen only, was received. The aperture is rather more than one-third the length of the shell. Its subcylindrical form is very remarkable.†

\* Since the above was written, I have received more mature and perfect specimens. They differ from the one described in being darker in the epidermis, and in having four purple broad bands, which are very distinct within the aperture. In these specimens, there is a series of indistinct tubercles above the periphery of the last whorl.

† Since the above description was written, Dr. Jay and Dr. Foreman have placed in my hands specimens from the same locality. The epidermis is perfect, and they are of a greenish horn colour. The interior of the aperture is bluish, while the apex is slightly salmon-coloured.

*Read December 16, 1842.*

In a paper which I read before this society, in January of last year, I added fifty-seven new species to the genus *Melania*, and in a subsequent paper, several more were added. Recently Dr. E. Foreman, of Baltimore, very kindly sent to me all the specimens from his cabinet, of the family *Melaniana* and *Peristomiana*, with permission to describe what I might find new. There appeared to me to be twelve undescribed *Melaniæ*, four *Anculosæ* and two *Paludinæ*. These I have described in this paper. In my former memoir, I stated that Lamarck does not mention a single species of *Melania* as inhabiting the rivers of Europe, but since the publication of his great work, Dr. Philippi and some other zoologists, have described a few species from Italy and the Eastern parts of Europe.

The genus *Melania* is greatly developed in the United States, while not a single species has been observed in Great Britain or the western part of the continent. When Lamarck issued his 6th vol. in 1822, he was acquainted with only sixteen recent species, nearly all of which, he says, are exotic to Europe. Since that period our knowledge of this genus has greatly extended, and my catalogue now includes the names of two hundred and sixty-six species. This does not include the *Anculosæ*, which Mr. Say very properly separated from the *Melaniæ*. My catalogue of these embraces thirty-three species.

Of the two hundred and sixty-six\* species of the genus *Melaniæ*, forty-four† are in a fossil state, leaving two hundred and twenty-two recent. Of these sixty-one are exotic, and one hundred and sixty-one indigenous. Eighty-eight of these are described in my papers, including the present one, presented to this society.

It is remarkable, that while such a vast development of this genus has taken place here, that as yet we have not observed a single species of the nearly allied genus *Melanopsis* in North America. It ranges in a variety of species from the Caucasus to the Alps. I have in my cabinet three supposed species from South America. One of these, the *crenocarina* of Moricand (a very interesting shell) will, I think, have to be removed to a new genus. The *Braziliensis* of the same author approximates more closely to Lamarck's characteristics, but the callus is absent; and the same remark applies to the *maculata*, (nobis.‡)

\* Of these there may be probably twelve or fifteen duplications.

† For many years I have believed that many of Lamarck's fossil *Melaniæ* belonged to other genera, and I find that M. Deshayes, in his notes to the new edition of Lamarck, mentions six as certainly not *Melaniæ*.

‡ Having inadvertently in my former papers duplicated some names, I propose the following changes, *Melania plicatula* to *M. Deshayesiana*, that name being preoccupied by Deshayes. *Melania plicata*, to *M. Menkiana*, that name being preoccupied by Dr. Menke. *Melania exarata*, to *M. arata*, that name being preoccupied by Dr. Menke. *Planorbis lens* to *P. Brogniartiana*, that name being preoccupied by M. A. Brogniart.

## MELANIA VANUXEMIANA.\*

*Testā striatā, obtuso-conicā, solidā, luteolā, fasciatā; spirā breviusculā; suturis impressis; anfractibus senis, subconvexis; columellā supernē incrassatā; aperturā ovatā, albā.*

Shell striate, obtusely conical, solid, yellowish, banded; spire rather short; sutures impressed; whorls six, somewhat convex; columella thickened above; aperture ovate, white.

Hab. Alabama. E. Foreman, M. D. Cabinet of Dr. Foreman. Diam. .42, Length, .73 of an inch.

*Remarks.*—A very pretty symmetrical species, having the mouth rather more than one-third the length of the shell. A single specimen only is before me. It has five nearly equidistant coarse striæ, and four purple bands. It is somewhat like *M. ovalis*, herein described, but has a wider aperture, and a higher spire. I name it after my friend, Prof. Vanuxem.

## MELANIA OVALIS.

*Testā striatā, fusiformi, solidā, luteā, fasciatā; suturis valdè impressis; anfractibus senis, subconvexis; aperturā ovatā, constrictā, intus albida.*

Shell striate, fusiform, solid, yellow, banded; sutures much impressed; whorls six, rather convex; aperture oval, narrow, whitish within.

Hab. Alabama. E. Foreman, M. D. My Cabinet, and Cabinets of Dr. Foreman, T. G. Lea, and J. Clark. Diam. .40, Length .62 of an inch.

*Remarks.*—A number of specimens were kindly sent by Dr. Foreman for my inspection, several of which are young, exhibiting on the first two or three whorls very distinct folds. Those of the larger specimens are worn off. The mature specimens are remarkable for their irregularly elliptical form, generally having transverse striæ over the whole surface. The aperture is very regularly ovate, fully the half of the length of the shell.

## MELANIA HAYSIANA.

*Testā striatā, subcylindraceā, solidā, luteo-fuscā; spirā subelevatā; suturis impressis; anfractibus planulatis; aperturā parvā, ellipticā.*

Shell striate, subcylindrical, solid, yellowish brown; spire rather elevated; sutures impressed; whorls flattened; aperture small, elliptical.

Hab. Alabama. E. Foreman, M. D. My Cabinet, and Cabinets of Dr. Foreman, T. G. Lea, and J. Clark. Diam. .43, Length .90 of an inch.

*Remarks.*—Dr. Foreman submitted many specimens of this species to my examination, and I find them differing very much in form and colour. Some individuals are so full of dark purple bands as to give them a dark hue; others are devoid of bands entirely, and are yellowish. The aperture is contracted, and about one-third the length of the shell. The transverse raised striæ, in some, cover nearly all the whorls, while others are almost or entirely free from them. In general outline it is allied to *M. picta*, (nobis,) all the specimens being more or less eroded at the beaks. I am unable to state the number of whorls, but believe them to be eight or nine. I dedicate this species to my friend Isaac Hays, M. D.

## MELANIA EXCISA.

*Testā striatā, subfusiformi, subcrassā, luteolā; spirā ovato-conicā; suturis impressis; anfractibus planulatis; aperturā supernē excisā, parvā, ellipticā, albā.*

Shell striate, subfusiform, rather thick, yellowish; spire ovately conical; sutures impressed; whorls flattened; aperture cut out above, small, elliptical, white.

\* In this paper I adopt the rules of construction laid down in botanical nomenclature, (see Linley's Elements,) where it is usual, when species are named after individuals who discover them, to use the genitive; when in compliment, the adjective.

Hab. Alabama. E. Foreman, M. D. My Cabinet, and Cabinets of Dr. Foreman, T. G. Lea, and J. Clark. Diam. .40, Length .64 of an inch.

*Remarks.*—This shell is very remarkable for the cut in the superior part of the outer lip, very similar to some species of *Pleurotoma*. This cut extends nearly one-fifth round the whorl, leaving immediately below the suture an elevated ridge. There are nearly three whorls of this specimen perfect, and the cicatrix shows the cut to have extended in due proportion thus far. The aperture is rather small, and rather more than one-third the length of the shell. On the spire there is a slight disposition to plication. The apex being eroded, the number of whorls is not certain, perhaps six. This specimen has three revolving purple bands.

For the first time we now observe in the *Melaniana* a species with a pleurotomose lip. In all its other characters it is a true *Melania* resembling most, perhaps, *M. Vanuxemiana*, herein described. A character so anomalous in this family, caused me to doubt the propriety of retaining it here. But the absence of the animal, and the fact that I have before me a new species, with the other characteristics of the genus *Anculosa*, having in a minor degree this pleurotomose character, induces me merely to propose a name provisionally for it. The animal may be on examination different; should it prove so, it may then be called *Schizostoma*, Σχίζω, to cut, Στόμα, a mouth.

Under the microscope may be observed, in this species, very minute undulating revolving striæ.

#### MELANIA ORDIANA.

*Testâ striatâ, pyramidatâ, crassâ, tenebroso-fuscâ; spirâ exsertâ; suturis valdè impressis; anfractibus planulatis; aperturâ formam rhombi habente, parvâ, albidâ.*

Shell striate, pyramidal, thick, dark brown; spire drawn out; sutures deeply impressed; whorls flattened; aperture rhombic, small, whitish.

Hab. Alabama. E. Foreman, M. D. My Cabinet, and Cabinets of Dr. Foreman, T. G. Lea, and J. Clark. Diam. .52, Length 1.25 of an inch.

*Remarks.*—A single specimen only of this species is before me, and that unfortunately is decollate, in having lost, probably, four or five whorls: the four lower whorls are perfect. The outer lip is much curved, giving the aperture an auger-like appearance, and causing the channel to be much impressed. On the body whorl there are four rather distant elevated striæ, three of which are large: the whorls above exhibit two. The aperture is about one-fourth the length of the shell. This species resembles *M. canaliculata*, (Say,) and *M. annulifera*, (Con.) It has not the channel of the former, and differs from the latter, in having deeply impressed sutures in the form of the aperture, in the outer lip, and in the striæ. I dedicate it to my old friend, George Ord, Esq.

#### MELANIA BREVIS.

*Testâ striatâ, subcylindraceâ, subsolidâ, luteâ; spirâ breviusculâ; suturis impressis; anfractibus planulatis; columellâ supernâ incrassatâ; aperturâ ovatâ, albâ.*

Shell striate, subcylindrical, somewhat solid, yellow; spire rather short; sutures impressed; whorls flattened; columella thickened above; aperture ovate, white.

Hab. Alabama. E. Foreman, M. D. Cabinet of Dr. Foreman. Diam. .41, Length .60 of an inch.

*Remarks.*—A single specimen only of this species is before me. The apex being eroded, the number of whorls cannot with certainty be ascertained: there appear to be about five. On this specimen, there are eight indistinct impressed striæ, and several low, irregular folds on the body whorl, which may be more distinct on the superior whorls when found perfect. The aperture is about half the length of the shell.

#### MELANIA OLIVA.

*Testā striatā, ellipticā, solidā, fuscā; spirā breviusculā; suturis valdè impressis; anfractibus convexis; columellā incurvatā, supernè incrassatā; aperturā ovata, albā.*

Shell striate, elliptical, solid, brown; spire rather short; sutures much impressed; whorls convex; columella incurved, thickened above; aperture ovate, white.

Hab. Alabama. E. Foreman, M. D. My Cabinet, and Cabinet of Dr. Foreman. Diam. .50, Length 1 inch.

*Remarks.*—This is a ponderous and rather large species, with not very distinct striæ on the few specimens before me. The superior part of the columella is quite callous. The apex of each is too much eroded to designate the number of the whorls. The aperture is rather small, and contracted. One of the specimens is rather coarsely plicate.

#### MELANIA FOREMANI.

*Testā tuberculatā, pyramidalā, subcrassā, luteo-fuscā; spirā elevatā; suturis enor miter lineatis; anfractibus novēnis, planulatis; aperturā productā, ad basim angulata et canaliculatā, intus albida.*

Shell tuberculate, pyramidal, rather thick, yellowish brown; spire elevated; sutures irregularly lined; whorls nine, flattened; aperture elongated, angular and channelled at the base, within whitish.

Hab. Alabama. E. Foreman, M. D. My Cabinet, and Cabinets of Dr. Foreman, T. G. Lea, and J. Clark. Diam. .52, Length 1.28 of an inch.

*Remarks.*—A fine, large, symmetrical species, furnished with a row of closely set tubercles on the middle of the whorl, and several irregular transverse striæ disposed to be tuberculate. The seven or eight specimens before me are very similar, differing but little in form or colour. The oldest one is rather browner. It is remarkable for its regular pyramidal form. The aperture is contracted, and rather more than one-third the length of the shell. I have great pleasure in dedicating it to Dr. Foreman, to whose kindness I owe the specimen in my cabinet.

#### MELANIA TORQUATA.

*Testā tuberculatā, subfusiformi, nitidā, subtenui, luteā; spirā subelevatā; suturis impressis; anfractibus septenis, subconvexis; aperturā productā, ad basim angulatā, intus albida.*

Shell tuberculate, subfusiform, shining, rather thin, yellow; spire rather elevated; sutures impressed; whorls seven, somewhat convex; aperture elongated, angular at the base, within whitish.

Hab. Tennessee. E. Foreman, M. D. My Cabinet. Diam. .42, Length .80 of an inch.

*Remarks.*—This is a very beautiful species, of which I have only one specimen before me. The necklace-like row, (hence its name,) of small closely set tubercles, gives it an attractive appearance. Each successive whorl covers up these tubercles as well as several striæ below them, leaving the whole spire smooth. The aperture is rather contracted, and nearly half the length of the shell. The outer lip is sharp, and very much curved. It has some resemblance to *M. alveare*, (Con.) but is a larger shell, less solid, and more fusiform.

## MELANIA PRODUCTA.

*Testâ plicatâ, subfusiformi, subtenui, corneâ; spirâ obtuso-conicâ; suturis impressis; anfractibus octonis, planulatis; aperturâ ellipticâ, albida.*

Shell folded, subfusiform, rather thin, horn-coloured; spire obtusely conical; sutures impressed; whorls eight, flattened; aperture elliptical, whitish.

Hab. Tennessee. E. Foreman, M. D. My Cabinet, and Cabinet of Dr. Foreman. Diam. .57, Length .70 of an inch.

*Remarks.*—This species has rather distant folds on the first six whorls, and a disposition to tuberculation on the middle of the lower whorl, the superior part being disposed to be striate. The base of the columella is twisted, and the channel well impressed. The aperture is quite one-half the length of the shell.

## MELANIA CURVATA.

*Testâ obtuso-carinatâ, subpyramidalâ, subcrassâ, tenebroso-corneâ; spirâ subelevatâ; suturis impressis; anfractibus octonis, convexis; aperturâ parvâ, curvatâ, albida.*

Shell obtusely carinate, somewhat pyramidal, rather thick, dark horn colour; spire somewhat elevated; sutures impressed; whorls eight, convex; aperture small, curved, whitish.

Hab. Tennessee. E. Foreman, M. D. My Cabinet, and Cabinet of Dr. Foreman. Diam. .40, Length .73 of an inch.

*Remarks.*—The two specimens before me vary very little in all their characters. This is a very distinct species, resembling more, perhaps, *M. conica* (Say) than any other. The whorls are close, and about the middle are placed two or three obscure carinae, which cause a slightly impressed channel. The aperture is small, being a little more than one-third the length of the shell. The outer lip is sharp and very much curved, causing the base of the columella to be twisted. In one of the specimens an obscure band near the base in the interior may be observed.

## MELANIA EXPANSA.

*Testâ lœvi, subfusiformi, subcrassâ, luteolâ; spirâ obtuso-conicâ; suturis subimpressis; anfractibus quinoris, subconvexis; aperturâ magnâ, expansâ, albida.*

Shell smooth, somewhat fusiform, rather thick, yellowish; spire obtusely conical; sutures somewhat impressed; whorls five, slightly convex; aperture large, expanded, whitish.

Hab. Alabama. E. Foreman, M. D. Cabinet of Dr. Foreman. Diam. .43, Length .63 of an inch.

*Remarks.*—A solitary specimen of this was among the shells sent by Dr. Foreman. In form it resembles *M. variabilis*, (nobis,) but may be distinguished from that species in being larger, and having a larger proportionate aperture, which is more expanded. The aperture is full one-half the length of the shell. The specimen under examination has four bands, and the yellow epidermis is nearly covered with a deposit of the oxide of iron.

## ANCULOSA INCISA.

*Testâ lœvi, ovato-gibbosâ, crassâ, luteo-fuscâ; spirâ brevis; anfractibus quaternis, planulatis; columellâ supernè incrassatâ; aperturâ magnâ, ovatâ, albâ.*

Shell smooth, ovately gibbous, thick, yellowish brown; spire short; whorls four, flattened; columella thickened above; aperture large, ovate, white.

Hab. Alabama. E. Foreman, M. D. My Cabinet, and Cabinets of Dr. Foreman, T. G. Lea, and J. Clark. Diam. .44, Length .64 of an inch.

*Remarks.*—Four individuals of this species are before me, and all of them have, though in a less degree, the remarkable pleurotomose character, described in the remarks on *Melania excisa*, page 25.

The observations there made in regard to the genus, may in part be referred to for this shell. It might be supposed, that this cut could be caused by a fracture in the shell, or injury to the animal. But this is by no means the case. On the contrary, in one of the individuals where a fracture took place by the breaking off of the middle of the lip, this was subsequently replaced, and the curved edge reinstated as before. This species resembles in form *Anculosa Foremani*, herein described; but the spire is more exserted. All the four specimens have three brown bands more or less distinct, and the callus on the superior part of the columella is slightly maculate with brown. The aperture is about two-thirds the length of the shell.

#### ANCULOSA FOREMANI.

*Testa lœvi, ovato-gibbosâ, crassâ, luteâ, transversè lineatâ; spirâ brevissimâ; suturis impressis; anfractibus subplanulatis; columellâ percrassâ, aperturâ submagnâ, ellipticâ, albâ.*

Shell smooth, ovately gibbous, thick, yellow, transversely lined; spire very short; sutures impressed; whorls somewhat flattened; columella very thick; aperture rather large, elliptical, whitish.

Hab. Alabama. E. Foreman, M. D. My Cabinet, and Cabinet of Dr. Foreman. Diam. .40, Length .50 of an inch.

*Remarks.*—Two of the three specimens under examination have very distinct, capillary, revolving, deep brown lines between the top of the aperture and the base. Above that the space is nearly filled up with two indistinct, interrupted lines which give a clouded appearance to that portion of the shell. The third specimen is of a brighter yellow with all the lines nearly obliterated. In form this species very closely resembles *An. flammata* herein described, but the capillary lines distinguish it at once, and the columella is thicker at the base. In all the three specimens a slight tinge of brown may be distinguished on the middle of the columella. I dedicate the species to Dr. Foreman, who kindly placed a specimen in my cabinet.

#### ANCULOSA SOLIDA.

*Testa lavi, ellipticâ, subcrassâ, luteo-fuscâ; spirâ exsertâ; suturis impressis; anfractibus planulatis; columellâ incurvâtâ, supernè et infernè incrassatâ; aperturâ elongatâ, ellipticâ, albâ.*

Shell smooth, elliptical, rather thick, yellowish brown; spire somewhat drawn out; sutures impressed; whorls flattened; columella incurved, thickened above and below; aperture elongated, elliptical, white.

Hab. Alabama. E. Foreman, M. D. My Cabinet, and Cabinet of Dr. Foreman. Diam. .38, Length 60 of an inch.

*Remarks.*—Three specimens only were sent to me by Dr. Foreman. They differ very little from each other, except that one exhibits a few indistinct elevated revolving striæ. Other specimens may present this character more strongly. Neither of the specimens have a perfect spire, the apices being eroded. The number of whorls I should think, however, were five. The aperture seems to be rather more than half the length of the shell. The columella is remarkable for its callus near the base as well as having another above.

## ANCULOSA FLAMMATA.

*Testâ lœvi, ovato-gibbosâ, crassâ, luteolâ, obliquè flammatâ; spirâ brevissimâ; suturis impressis; anfractibus subplanulatis; columellâ supernè percrassâ; aperturâ submagnâ, ellipticâ, albida.*

Shell smooth, ovately gibbous, thick, yellowish, obliquely flammulate; spire very short; sutures impressed; whorls somewhat flattened; columella very thick above; aperture rather large, elliptical, whitish.

Hab. Alabama. E. Foreman, M. D. Cabinet of Dr. Foreman. Diam. .38, Length .49 of an inch.

*Remarks.*—A single specimen, broken on the outer lip, is before me. The middle of the whorl is slightly flattened. The spire is eroded, and little more than one whorl is presented. The epidermis on this part is nearly perfect, and exhibits a fine yellow ground with thickly set, oblique, flammulate, brown bands. This species is very distinct from any I know, not being aware that flammulate bands have been before observed in any of this genus. In a single species of *Melania*, somewhat similar bands exist, the *M. breviformis* (Pareyss,) from New Holland.

## PALUDINA INCRASSATA.

*Testâ lœvi, ellipticâ, subtenui, imperforatâ, tenebroso-corned; suturis subimpressis; anfractibus subconvexis; columellâ supernè incrassatâ; aperturâ subrotundatâ, parvâ, intus cæruleâ.*

Shell smooth, elliptical, rather thin, imperforate, dark horn colour; sutures somewhat impressed; whorls somewhat convex; columella thickened above; aperture rather round, small, within bluish.

Hab. Alabama. E. Foreman, M. D. Cabinet of Dr. Foreman. Diam. .52, Length . . . of an inch.

*Remarks.*—Rather more than the first whorl only of the specimen before me is perfect, and I would not have proposed it for a new species, but that this part differs from any which has come under my notice. The callus on the superior part of the columella is very like that we find in the genus *Anculosa*. The aperture is smaller than usual in this genus. The upper whorls being decollate, neither their number nor the form of the spire can be given.

## PALUDINA COARCTATA.

*Testâ lœvi, ovatâ, coarctatâ, crassâ, imperforatâ, olivaceâ; spirâ exsertâ; suturis valdè impressis; anfractibus planulatis; aperturâ subparvâ, ovatâ, albâ.*

Shell smooth, ovate, compressed, thick, imperforate, olive colour; spire drawn out; sutures much impressed; whorls flattened; aperture rather small, ovate, white.

Hab. Alabama. E. Foreman, M. D. Cabinet of Dr. Foreman. Diam. .50, Length .98 of an inch.

*Remarks.*—This species, of which a single specimen only was received, differs from all of the genus which has come under my notice. It is remarkable for its compressed form, the body whorl being quite flattened. The apex is eroded, which prevents the number of whorls being ascertained: there appear to be five. The aperture is less round than usual in this genus, and may be rather more than half the length of the shell.

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